BULL. BOT. SURV. INDIA
Vol. 6, Nos. 2-4: pp. 169-171, 1964

A VISIT TO THE VALLEY OF FLOWERS AND LAKE HEMKUND IN NORTH GARHWAL, U. P.

M. A. RAU

Botanical Survey of India, Northern Circle, Dehra Dun

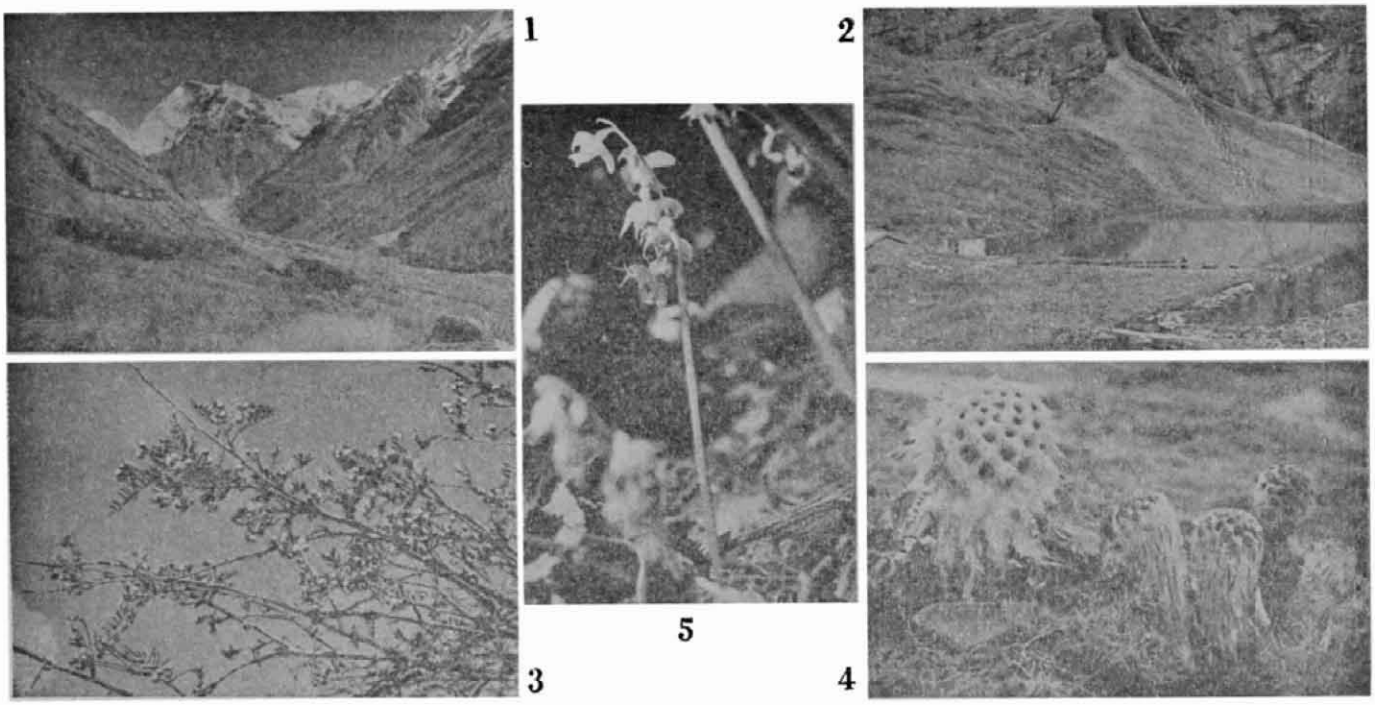
ABSTRACT

The paper gives a brief account of the vegetation in the valley and around Lake Hemkund in late autumn as observed by the author during a recent visit. The paper also records, for the first time, the occurrence of *Epipogium tuberosum* Duthie, the rare saprophytic orchid which was previously known only from Kashmir and was recently recorded from Kulu Himalayas, thus extending its known distribution further eastwards. A photograph of the singular woolly species of *Saussurea* gathered at an altitude of 4400 m is included.

In a recent publication (M. A. Rau, 1961), the flowering plants and ferns collected from various localities in North Garhwal Himalayas during the years 1957-59 were enumerated. Since then further visits have been made by the officers of the Northern Circle, Botanical Survey of India, into the inner valleys of Garhwal Himalayas. Dr. U. C. Bhattacharyya, Botanist of the Northern Circle, who was a member of the Bengal Himalayan Association's expedition to the Nilgiri Parbat in October 1962, collected plants in the valleys around the base of Nilgiri Parbat at altitudes ranging between 3000 and 5000 m. He has again visited this area during the rainy season of 1963 and has also collected plants from the slopes around Rupkund. These visits have yielded a very rich collection of plants, many of which were not included in the list published earlier. One of the most interesting plants included in these collections is the remarkable little *Circaeaster agrestis* Maxim., which was collected for the first time from Garhwal Himalayas (Bhattacharyya, 1963). Dr. Bhattacharyya is now preparing a detailed account of these tours for publication.

The author undertook a visit to the Valley of Flowers (Pl. I, Fig. 1) and Lake Hemkund (Pl. I, Fig. 2) during the latter half of October 1963, primarily with a view to collect fruit and seed specimens for the carpological section of the Northern Circle Herbarium. Observations were incidentally made on the vegetation during late autumn in the valley and on the slopes around Lake Hemkund. The first snow had already fallen on the higher ranges and the day temperature in the valley at an altitude of 3600 m was 7-8°C and 1-2°C at Lake Hemkund (alt. 4200 m) with the night temperature at the latter place as low as −8°C to −10°C. The Birch trees had all shed their leaves and the smooth freshly peeled barks stood out glowing against the bright autumn sun and the cloudless blue sky. In the valley, the herbaceous vegetation had almost dried up but in some places it was so dense that one had to brush through thickets in which *Aconitum heterophyllum* Wall., *Orchis latifolia* Linn. and *Osmunda claytoniana* Linn. were prominent. *Nomocharis oxypetala* Balf. f. had fruited and was in abundance. Near streams, *Epilobium latifolium* Linn. and other species of *Epilobium* were in evidence with their dehisced fruits and silky haired seeds. Everywhere one could see dried inflorescences of *Polygonum affine* D. Don and *P. vaccinifolium* Wall. The most widely distributed herbs were, perhaps, species of *Anaphalis*. Very few plants were in flowers in the valley among which were *Saxifraga diversifolia* Wall., *Cyananthus lobatus* Wall. and *Gentiana stipitata* Edgew. The last named, a very pretty herb with large blue purple-backed flowers, was found growing in clumps here and there and a bunch of these flowers was placed by the author on the memorial to Joan Margaret Legge, a Botanist from Kew, who lost her life while collecting plants in the valley. The marble tablet on the simple tomb bears the inscription "I will lift up mine eyes unto the Hills from whence cometh my help". One of the most conspicuous stunted shrubs in the valley was *Salix flabellaris* Anderss. which was forming mats on the ground. *Euphorbia pilosa* Linn. which had fruited and *Archangelica himalaica* Clarke, with large umbels of fruits were among the tall herbs seen in the valley. There were also in abundance *Impatiens roylei* Walp., *Morina longifolia* Wall. and *Sedum rhodiola* DC. which were, however, past their prime. Although the general aspect of vegetation on the slopes was one of dryness, a few plants of *Potentilla atrosanguinea* Lodd. with their attractive crimson flowers provided a pleasant relief. One of the most conspicuous grasses in the valley growing in thick clumps was *Danthonia jacquemontii* Bor.

Lake Hemkund located at an altitude of 4200 m, affords a magnificient spectacle, being surrounded by high mountain walls. The approach to the lake involves a steep ascent through a Birch forest followed by a trek along moist boulder strewn slopes. One of the conspicuous plants in the Birch forest is *Sorbus foliolosa* Spach (Pl. I, Fig. 3), whose fruits are eaten by the Himalayan



Figs. 1—5

1. The Valley of Flowers (alt. 3600 m) in North Garhwal with Mt. Rataban in the background. 2. Lake Hemkund (alt. 4200 m). The arrow points to the spot on the slope where the woolly Saussureas were collected. 3. *Sorbus foliolosa* Spach. 4. *Saussurea gossypiphora* D. Don (at extreme left—Height from base 20 cm. Width of dilated top of stem bearing heads, 12 cm) and *S. sacra* Edgew. (Height 15 cm. Width of top of stem 5 cm). 5. *Epipogium tuberosum* Duthie in forest undergrowth.

bear. At the time of our visit evidence of this could be seen in the twisted and wrenched branches of the trees and the fresh excreta of the animal which we saw in many places along the mountain path. The excreta had plenty of undigested bluish-red fruits of *Sorbus*. The bears are said to go higher up the slopes during daytime and return to the Birch level at night in search of food of which the fruits of *Sorbus* seem to occupy a prominent place. *Podophyllum emodi* Wall., in fruits, was met with occasionally in the undergrowth of Birch forest. Above the Birch level and on the boulder strewn slope along the Hemkund stream which flows down from the lake, were seen many alpine herbs, most of which had fruited. In drier area *Meconopsis aculeata* Royle was found and there were many 'Brahma-Kamals' (*Saussurea obvallata* Wall.) with dried bracts and fruited heads. The large leaved *Rheum* species was also seen on rocks and the leaves had turned deep red. *Anaphalis nepalensis* Hand.-Mazz. and a sky-blue flowered species of *Swertia* were among the few plants which were still in flowers. The most interesting collection of this visit to the lake was, however, obtained on the slopes beyond the lake (marked with an arrow in Pl. I, Fig. 2) just along-side the glacial moraine where the singular woolly Saussureas were found. Among these were the soft woolly, blue-purple headed species which answers to the description of *Saussurea sacra* Edgew. (Pl. I, Fig. 4). The other large strange looking specimen (at extreme left in Pl. I, Fig. 4) had thick cottony wool and more than fifty dark purple heads imbedded in the large dilated top of the stem, nearly 12 cm across. This specimen, in general, agrees with the description of *S. gossypiphora* D. Don. Hooker (1881) has, however, stated that he greatly doubts *S. sacra* "being specifically distinct from *S. gossypiphora* with which Wallich (doubtfully) and Clarke have united it". The present author having seen both these growing alongside in nature is convinced that the two are very different in their size, general appearance, colour and texture of wool, shape, size and margin of involucral leaves, character of pappus etc. It is also obvious from the photograph (Pl. I, Fig. 4), which shows the two species in almost the same stage of development of their inflorescences, that the two are different. The Eriocoryne subgenus as given by Hooker (1881) appears to be in need of further study and revision. Specimens of both species representing different stages of growth are now available with the Northern Circle, Botanical Survey of India. These are now under study and a separate communication will follow. The high altitude *Primula*, *P. nivalis* Pall. and its varieties and *Pleurospermum* species were among the other herbs found on these slopes.

An interesting find in the forest undergrowth at Gangharea (alt. 3000 m), which is the base for the visits to the Valley of Flowers and Lake Hemkund, was the rare terrestrial orchid, *Epipogium tuberosum* Duthie (Pl. I, Fig. 5). This species which was established by Duthie was known only from Kashmir till very recently when the present author collected it in the Rahla forest in Kulu Himalayas (*see* M. A. Rau and T. A. Rao, 1961). The present finding extends its distribution further eastwards. The orchid is characterised by the possession of a tuberous base and the absence of lobes in the lip whereas the closely allied *E. aphyllum* Sw., whose specimens were also collected during this visit from the same locality, have coralloid roots and a three-lobed lip.

The specimens gathered during the above visit are all preserved in the Herbarium of the Northern Circle, Botanical Survey of India at Dehra Dun.

LITERATURE CITED

BHATTACHARYYA, U. C. *Circaeaster agrestis* Maxim. (Circeasteraceae), *a new record for North Garhwal Himalayas* (in press) 1963.

HOOKER, J. D. *Flora of British India* 3 : 376-77, 1881.

RAU, M. A. Flowering Plants and Ferns of North Garhwal, Uttar Pradesh, India. *Bull. bot. Surv. India* 3 : 215-251, 1961.

——— AND T. A. RAO. Some Plant Records—IV. *Ibid* 3 : 29-30, 1961.